

the key to THE FUTURE

Globally, the road transport industry is looking for the keys to unlock the future in a world where lower carbon emissions, higher productivity and lower traffic congestion are vital.



Professor Alan McKinnon



When the Heavy Vehicle Transport Technology Symposium (HVTT 11) opens, delegates will be working towards a clear idea of the future course of development of road transport technology in the years ahead. HVTT 11, held in the week before the opening of the International Truck, Trailer and Equipment Show in Melbourne, will see a major debate between those formulating policy or transport of the future and those developing the technology to get the job done safely and effectively. One of the contributors will be keynote speaker, Prof Alan McKinnon, regarded as one of the leading experts and academics in the development of logistics around the world. He is the Director of the Logistics Research Centre at Herriot Watt University in Edinburgh, Scotland, has fulfilled a number of major posts in the development of logistics and transport around the world and is currently a member of the World Economic Forum's Global Agenda Council on the Future of Transportation. Prof McKinnon's speeches will bracket the HVTT 11 event in the first and final sessions of the symposium. But more importantly his presence will give delegates an opportunity to pick the brains of one of the world's leading thinkers in the field of transport and logistics. "I have been researching in its area for several decades," says Prof McKinnon. "Much of my research has been on the road freight sector and in recent years the focus has been very much on the environmental impact of road freight. We particularly looked at what can be done about carbon emissions and in my presentation in Melbourne in March, I expect to concentrate on the issues of sustainability and climate change. "One thing which has occupied a lot of my time recently is what we call low carbon logistics. Looking at how you measure carbon dioxide emissions for logistics and then looking at what kind of de-carbonisation measures can be implemented. We look at the relative costs of the measures and their impact on emissions."

Prof McKinnon has concentrated on road freight transport over the years, but the recent concern about climate change has led to broader studies of the climate impact on the entire supply chain. In the UK, there is a project called Green Logistics, involving six universities. It is concerned with modeling the impact of road transport up to 2020 and 2050. The work has identified eight key parameters like supply chain systems, empty running, fuel efficiency and carbon levels in fuel. "If you use these levers on the supply chain, it would be possible to decouple carbon emissions from overall demand for road freight," says Prof McKinnon. "Our 'business as usual' case suggested a 25% increase in demand for freight movement in the UK by 2020. Nevertheless there would be an 8% reduction in carbon dioxide emissions over the same period. This is because we are projecting a big improvement in the loading of vehicles, reducing empty running. We are also expecting an improvement in fuel efficiency and a bigger uptake of low carbon fuels as well as switching to other transport modes." The problem for the transport industry is that an 8% reduction is not enough to meet government targets. The required target has been set at 34% reduction and a wide range of initiatives are needed in order to reach this target. Improved fuel efficiency on vehicles will be a major item with hybrids, trailers with improved aerodynamics and eco-training for drivers. "There's a whole range of things you can throw at this, it seems to me," says Prof McKinnon. "Each of them only chips away two or three percent but collectively the net effect is actually quite large. One of my underlying concerns however, is that all of the improvements are being made at the operational level and a lot of the decisions at policy level at the top end are pushing us in the wrong direction. Companies decide to centralise their warehousing or move to global sourcing, increasing the need for transport. We need a change in the mindset of these guys making decisions at high levels



otherwise a lot of the good work being done at the lower end of the hierarchy is being un-done."

Customer pressure on transport operators will often force them to run inefficiently. The service levels demanded by some customers force empty running to maintain service levels. Operators are also unable to plan very far ahead as customer demand can vary from day to day.

"I am encouraged because there is more visibility being built into the supply chain and operators are being informed earlier," says Prof McKinnon. "There is also a greater interest in prioritising better vehicle utilisation. Companies are a lot more relaxed about collaborating and sharing vehicle capacity. There is a clear cost benefit as well as a clear environmental benefit. "There is an example in the UK where two companies, Kimberly-Clark and Kellogg's, have more or less pooled their transport fleets. They have made dramatic savings in vehicle kilometres. There's a really nice expression they have come up with, 'we compete on the shop shelf but not on the back of a truck.'"

The average freight journey in the UK is just 87 km. Prof McKinnon headed a study into the effects of congestion on freight transport. Many people were interviewed throughout the supply chain and asked how congestion was impacting on their business and what they were doing about it. It was found that logistics managers were very confident about the whole issue and with the effects of congestion having built up over a long period of time so they could adjust to the situation.

"An awful lot of congestion is regular and predictable," says Prof McKinnon. "As the network approaches saturation level the probability of paralysis increases, when there is a major jam and everything is delayed. It's difficult to put enough buffers into the system to account for that, but that doesn't happen very often. Even in the most congested areas of the UK, companies have found ways of dealing with the congestion issue."

There has been a move away from daytime deliveries to nighttime deliveries, when traffic levels are lower. In 1985, 8.5% of kilometres run by trucks in the UK were at



night, today the figure is around 21%. Telematics systems are being used by many companies to enable customers to check on the progress of a delivery vehicle and give early warnings of any late deliveries. Governments in Europe have come to the conclusion it is impossible to build your way out of traffic congestion. They are putting greater emphasis on active traffic management using road-based traffic information systems to vary speed limits and control access points to the motorway system.

Research has shown that people using the highways are more interested in a reliable transit time than a shorter one. It is more important to most people to be certain of being able to get to their destination at a particular time, even if it may take a little longer than usual due to congestion. New systems are being introduced to clear any road blockages as soon as possible, minimising disruption.

"We were involved in the study for the UK government on longer and heavier vehicles on our roads," says Prof McKinnon. "It's a very controversial subject and the railways here see these vehicles as Armageddon. They lobbied very aggressively against it. We looked at several scenarios up to vehicles 34 m long at 84 tonnes GVM. In the end the government decided not to allow any longer vehicles on our roads but they left the door slightly ajar for the possibility of a longer semi trailer. This may not involve a weight increase but creates more space for high cube freight."

"Across Europe several countries are running the longer 25 m vehicles and getting cost benefits from them. But it is patchy across Europe and there's a feeling there is a need for further study. I describe this as paralysis by analysis. They are working on more fundamental research into the economics of transport to model the issue more effectively."

According to Prof McKinnon in the past six or seven years, there has been a culture change in the way some companies in the logistics industry think about their business. They are no longer paying lip service to green issues but genuinely making their businesses greener.

"I think there is a genuine fear about climate change and the message is getting across. If we don't attain its sustainability then the long term prospects of all businesses are going to be affected. The chemical industry is a good case in point. We have just done some work for them dealing with their logistics managers, doing a carbon audit in Europe. They are serious about the decarbonisation project," says Prof McKinnon.

"I think the true test of their environmental credentials will be further down the line when we have exhausted all the low hanging fruit and they will have to make the hard decisions. They will have to make capital investments, incur additional costs and sacrifice some profits in order to decarbonise. I think we're quite some way off that in logistics and I think there are some really big wins to be had still."

Prof McKinnon explains that it has always been in the road transport carriers' interest to reduce fuel costs and maximise loading at all times in order to maximise profitability of the business. However, the requirements of the customer have forced the transport operators to run more inefficiently in order to meet their service requirements.

It is only when customers grasp the implications of the way these businesses are run and how this impacts upon the efficiency of the transport operations they need, that they will understand the need to organise transportation differently. It is the changing culture at this end of the supply chain with the consign all and the consignee understanding the issue which Prof McKinnon says is driving future change.